1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--WELDING WIRE FOR WELDING BRONZE -U-

AUTHOR-(05)-MINCHINA, A.N., VAYNERMAN, A.YE., ZOLOTOREVSKIY, YU.S., MAKAROV, A.G., MALMSTREM, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,604

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--26JAN70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--BRONZE, WELDING ELECTRODE, COPPER ALLOY, ALUMINUM CONTAINING ALLOY, TITANIUM CONTAINING ALLOY, NICKEL CONTAINING ALLOY, IRON CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, ALLOY COMPOSITION, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1786 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109747

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AA0109747
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A WELDING WIRE HAS THE FOLLOWING PERCENT COMPN.: TI 0.2-0.4, NI 5-6.5, AL 1.5-2.5, FE 0.8-1.3, MN 2.5-3.5, AND CU THE REMAINDER.

UNCLASSIFIED

USSR UDC 669.715.018.29.539.341.9

MAKAROV, A. I., TYUTEVA, N. D.

"Influence of Ultrasonic Oscillations on Structure and Properties of AK-4 Aluminum Alloys"

Avtomatiz. Proizv. Protsessov. v Mashinostr. Metalloved. Term. Obrabotka Met. i Svarochn. Proiz-vo. Ch. 4 [Automation of Production Processes in Machine Building, Metal Science, Heat Treatment of Metals and Welding Production, Part 4 - Collection of Works], Tomsk University Press, 1970, p. 219. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I674 by V. Bochkareva).

Translation: Tests were performed on crystallizing Al alloys before the beginning of crystallization (C), at the moment of C, and after completion of C. The frequency of US oscillations was 440 KHz. The greatest change in the structure and properties was produced when US oscillations were applied at the moment of C.

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USSR

UDC 627.81(47+57)

MAKAROV, A. I., LIGUN, O. S.

"Technical-Economic Classification of the USSR Reservoirs"

Tr. koordinats. soveshchaniy po gidrotekhn. (Works of Coordinating Meetings on Hydroengineering), No 59, 1970, pp 162-168 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D51)

Translation: There are 968 reservoirs with a capacity greater than 1 million m^3 in operation in the USSR. All the reservoirs are divided into 3 categories with respect to total volume: >50 million m^3, 10-50 million m^3 and 1-10 million m^3. The reservoirs with thermoelectric power plants are considered separately. The classification of the largest reservoirs with a volume greater than 50 million m^3 of which there are 200 in the USSR is investigated in detail. A brief survey of existing methods of classifying reservoirs is presented. It is proposed that the reservoirs of this group be classified with respect to two attributes -- area of flooded lands which characterizes the economic loss from creation of the reservoirs and the useful volume reflecting the national economic effect. These attributes are used to separate the reservoirs into giants (with a flooded area greater than 100,000 hectares and a useful volume greater than 8 km^3), large (indexes of 10,000 to 100,000 hectares and 0.8-8 km^3), average (3,000 to 10,000 hectares and 0.1-0.8 km^3) and small (1,000 to 3,000 hectares

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USSR

MAKAROV, A. I., et al., Tr. koordinats. soveshchaniy po gidrotekhn., No 59, 1970, pp 162-168

and 0.05-0.1 km^3). The distribution of all the reservoirs of the USSR with a volume greater than 50 million m^3 with respect to the four mentioned groups is presented. The concept of the most important reservoirs which have total flooding indexes and useful volume greater than 90 percent of the corresponding indexes of all 968 reservoirs of the USSR is also introduced. There are 3 tables and a 7-entry bibliography.

2/2

USSR

UDC 621.81.001.5(47+57)

LEVIT, G. O., BAKHTIAROV, V. A., MAKAROV, A. I., and FINAROV, D. P.

"State of the Art in Studies to Generalize the Experience of Planning and Operating Complex-Purpose Reservoirs in the USSR"

Tr. koordinats. soveshchaniy po gidrotekhn. (Works of the Coordinating Meetings on Hydroengineering), No 59, 1970, pp 3-9 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D37)

Translation: The studies of the given problem started in 1966 are participated in by 31 institutes. The basic areas of this research, the organizations participating in it and the results obtained are described. The forms and procedure for publication of the USSR Reservoir Cadaster have been worked out as it is developed. All the reservoirs are divided into three groups: >50 million m^3 in volume, the thermal electric power plant reservoirs and reservoirs 10-50 million m^3 in volume. As methods of improving the effectiveness of using reservoirs have been developed, an effort has been made to create a procedure for planning and designing complex reservoirs. The basic difficulty consists in the absence of a united approach by the cooperating institutes to the providing of a basis for optimal operating conditions of the reservoir and a united point of view with respect to the

USSR

LEVIT, G. O., et al., Tr. koordinats. soveshchaniy po gidrotekhn. (Works of the Coordinating Meetings on Hydroengineering), No 59, 1970, pp 3-9 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D37)

procedure used to estimate losses in various branches on deviating from these operating conditions. The results of research to improve the procedure for forecasting variations of natural conditions when creating reservoirs have been described in greatest detail. The dependence of the intensity of reformation of the reservoir shores on their operating conditions, the variation of ice conditions when building the reservoirs, and the variation of channel reformations when regulating runoff have been noted. The development of methods of planning measures and determining expenditures when building reservoirs has been carried to the level of procedural instructions. The research has led to the conclusion that land evaluation must be reduced to the cost of measures to conserve the agricultural production balance while insuring a net profit. The increasing role of engineering protection of the land and increased requirements on sanitary by-passes have been established. The future research goals are formulated. There is 1 table.

2/2

USSR UDC: 621.373.078.6:621.374

MAKAROV, A. K., Moscow Power Institute

"Investigating the Dynamics of a Pulsed Phase AFC System"

Gor'kiy, Izvestiya VUZ--Radiofizika, No 10, 1972, pp 1538-1546

Abstract: This paper proposes a method of investigating the dynamics of pulsed phase automatic frequency control systems (PPAFC) for solving such problems as stabilizing frequency, filtration, and the like. This method uses the fact that the solution of the nonlinear differential equation describing PPAFC reduces to the solution of a linear differential equation perturbed in a time interval by a power function. It is then possible to obtain a simple algorithm for numerically solving the differential equation in that time interval, and also to find a method for its analysis through additional equations describing the starting and switching surfaces. The use of the proposed method is demonstrated with an unfiltered PPAFC system as the example, to permit using the phase plane as the switching space. The author expresses his gratitude to his supervisor M. V. Kapranov for his critical comments.

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USSR

UDC: 532.073:532.135

MAKAROV, A. M., ZHDANOVA, L. A., POLOZOVA, O. N., Higher Technical Academy imeni N. E. Bauman, Moscow

"Nonstationary Flow of a Viscoplastic Medium in a Plane Channel"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 22, No 1, Jan 72, pp 73-79

Abstract: The paper deals with the problem of nonstationary plane flow of a viscoplastic medium between parallel walls under the effect of an instantaneously applied time-constant pressure gradient. A nonlinear integro-differential equation is derived for the distribution of tangential shear stresses in the investigated region. The method of successive approximations is used for solving this equation. The problem of determining the time required for the sought interface between zones to reach a predetermined position is reduced to calculation of a quadrature. Two figures, bibliography of nine titles.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910007-9"

USSR

UDC 666.01:542.65:666,117.9

KUZNETSOV, A. A., MAKAROV, A. P.

"Influence of Glassmaking Conditions on Photochromic Properties of Glass Activated by Cerium"

Optiko Mekhanicheskaya Promyshlennost', No 12, 1972, pp 37-38.

Abstract: The influence of manufacturing conditions on the properties of photochromic glasses activated by cerium is studied. It is established that the maximum photochromic effect is achieved in glasses melted in flame furnaces, where the necessary reducing conditions are provided. Glassmaking in a medium of nitrogen and argon, although it provides good reproducibility of results, does not provide a high photochromic effect, particularly in the medium of nitrogen. The clear dependence of the photochromic effect on the concentration of dissolved nitrogen in the glass indicates that nitogen effects photochromism.

USSR UDC 533.6.011

MAKAROV, A. B., Institute of Hydromechanics, Academy of Sciences, USSR (Kiev)

"A Problem of the Radial Deformation of Sphere in Liquid"

Kiev, Prikladnaya Mekhanika, Vol 6, No 12, Dec 70, pp 121-124

Abstract: The article deals with a dynamic system consisting of an unbounded ideal incompressible fluid and a radially deformable sphere moving in it with a translational velocity. It is assumed that the sphere periodically ejects and sucks into itself the liquid surrounding it, through a tube. The hydrodynamic forces are computed for the indicated system, and the equation of motion is derived. The law of change of the radius which provides the maximum value of the translational velocity during the period of sphere compression is determined. 4 figures, 3 bibliographical entries.

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USSR

UDC:629.78.015:536.24

LEGKIY, V. M., MAKAROV, A. S., KOVAL', Yu. D.

"Experimental Study of Local Heat Transfer of a Plate in the Area of Transition from Laminar Boundary Layer to Turbulent"

Teplofiz. i Teplotekhnika. Resp. Mezhved. Sb. [Heat Physics and Heat Engineering. Republic Interdepartmental Collection], 1973, No 23, pp 106-109 (Translated from Referativnyy Zhurnal Raketostroyeniye, No 11, 1973, Abstract No 11.41.88 by T. A. Ye.)

Translation: The heat exchange of a longitudinally washed smooth plate is studied with mixed motion in the boundary layer. It is indicated that the recommendations for calculation of heat exchange in a boundary layer need experimental confirmation. In order to accumulate experimental data and refine the method of calculation of the transition zone, the local heat transfer of a plate with mixed motion in the boundary layer is studied. The experiments are set in a closed wind tunnel with a square working cross section of 0.28×0.28 m^2. The experimental technique and results are described.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--STATISTICAL ANALYSIS OF NONIDEAL CYLINDRICAL SHELLS -U-

AUTHOR--MAKAROV, B.P.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA JAN-FEB 1970, PP 97-104
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CYLINDRIC SHELL STRUCTURE, STATISTIC MECHANICS, STATISTIC ANALYSIS, COMPRESSIVE STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0177 STEP NO--UR/0484/70/000/000/0097/0104

CIRC ACCESSION NO--AP0054973
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054973

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A METHOD OF EXPERIMENTALLY STUDYING RANDOM DISPLACEMENT FIELDS IN THIN CIRCULAR CYLINDRICAL SHELLS WITH INITIAL IMPERFECTIONS. A COMPLETE STATISTICAL ANALYSIS IS MADE OF THE INITIAL DEVIATIONS OF THE MIDDLE SURFACE FROM THE IDEAL SHAPE AND OF THE SHELL DISPLACEMENTS DURING AXIAL COMPRESSION. THE OSCILLATION MODES OCCURRING AT THE MOMENT OF STABILITY LOSS ARE INVESTIGATED. THE POSSIBILITY OF OBTAINING THE STATISTICAL CHARACTERISTICS REQUIRED FOR PREDICTING PRECRITICAL AND POSTCRITICAL DISPLACEMENTS AND THE DISTRIBUTION OF CRITICAL FORCES IS DEMONSTRATED.

UNCLASSIFIED

AA0040675 M Makarov, D.M. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

241660 TRANSPORTATION OF FINELY DIVIDED CHARGE to a smelting furnace, for example by means of compressed air is characterized in that, in order to reduce consumption of compressed air (or other gas) and to facilitate operation of the furnace, the charge is transported directly into the burner by means of compressed oxygen in the amount required only for this purpose. The rate of oxygen issuing from an ejector is controlled. The proposed method differs from the pneumatic transportation system in that it does not include a dust separating system and intermediate bankers for holding the charge and the gas tube terminates at the melting unit, passing directly into the charge/oxygen vertical or horizontal burners.
15.1.68 as 1211823/22-1. L.M.BOCHKAREV et al(26.8.69) Bul 14/18.4.69. Class 40a. Int.Cl.C 22b.

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19750277

AA0040675

AUTHORS: Bochkarev, L. M.; Bykhovskiy, Yu. A.; Makarov, D. M.; Paretskiy, V. M.; and Sheynkman, L. K.

19750278

USSR UDC 621.791.052:620.192.46:669.14

FEDOROV, V. G., Candidate of Technical Sciences, MAKAROV, E. L., Candidate of Technical Sciences, BELOV, YU. M., Candidate of Technical Sciences, ZASETSKIY, YU. A., Engineer, and SHUBIN, V. I. Engineer

"Conditions for Crack Development in Welding EP56 Steel"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 31-32

Abstract: The development of cold cracks was investigated in joints of EP56 steel welded with EP56 electrodes after 1-14 hr of holding under different pressures. A definite relation was found between the H-content in the metal of the joint and the resistance of welded joints to the development of cracks; an index was determined which characterizes the disposition of welded EP56 steel joints to crack development at manual electric arc welding. The critical H-content in the metal of the welded joint (less than 10cm^3/100g) was established which excludes the development of cold cracks in welded EP56 steel joints, according to tests by the LTP-2 method. Joint hardness was HV 441 when welded with steam electrodes, and HV 430 when welded with electrodes annealed at maximum temperature, whereby the hardness of the base metal was HV 316. Five figures, three bibliographic references.
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USSR

UDC 621.791.019

PROKHOROV, N. N., Doctor of Technical Sciences, MAKAROV, E. L., Candidate of Technical Sciences, and FEDOROV, V. G., Engineer

"The Machine LTP2-3 for Investigating the Resistance of Steels to Development of Cold Cracks by Welding"

Kiev, Avtomaticheskaya Svarka, No 5, May 71, pp 73-74

Abstract: The LTP2-3 machine, developed at the Moscow Higher Technical School imeni N. E. Bauman for investigating the resistance of steels to cold cracks by welding, is described. The machine represents a five-sectional system of levers for simultaneous loading of five welded tee-specimens by a constant bending moment (maximum 150-200 kg). The machine can also be used for testing butt-welded specimens and, after simple modification, for testing specimens subjected to the action of an imitated thermal welding cycle. Two figures, one bibliographic reference.

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USSR UDC 681.325.65

MAKAROV, E. P., MIKHAYLOVSKIY, G. I.

"Algorithms and Programs for Analyzing and Optimizing the Static Characteristics of a Digital-Analog Converter"

Taganrog, Region. nauch.-tekhn. seminar po stat. analizu, modelir. i avtomatiz. kontrolya ob"yektov s konstrukt. slozhn. strukturoy--sbornik (Regional Scientific and Technical Seminar on Statistical Analysis, Modeling and Automated Monitoring of Objects with a Structurally Complex Design--collection of works), vyp. 6, 1972, pp 50-58 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 72, abstract No 11B308)

Translation: Algorithms and programs are proposed for studying a digital--analog converter used for shaping reference voltage levels in an analog--digital converter of sequential digital coding without feedback. A mathimatical description is formulated for the investigated digital-analog converter. Statistical methods of experimental planning are used to construct an effective algorithm for analyzing the parametric sensitivity of digital-analog converter circuits, and the problem of optimizing the parameters of digital--analog converter circuits is solved by the method of steepest descent. The

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USSR

MAKAROV, E. P., MIKHAYLOVSKIY, G. I., Region. nauch.-tekhn. seminar po stat. analizu, modelir. i avtomatiz. kontrolya ob"yektov s konstrukt. slozhn. strukturoy--sbornik, vyp. 6, 1972, pp 50-58

results of investigation of the mathematical model of the digital-analog converter on the "Ural-2" digital computer are discussed. Three illustrations, bibliography of four titles. L. P.

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USSR

UDC 539.374

MAKAROV, E. S.

"Toward a Theory of the Plasticity of Compressible Media"

V sb. Tekhnol. mashinostroyeniya. Vyp. 22 (Technology of Machine Building. No. 22 -- Collection of Works), Tula, 1972, pp 42-48 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V494)

Translation: A closed system of equations is constructed describing the three-dimensional dynamic problem of plasticity. Possible methods of solving the system are discussed that are based on the variational principles of the mechanics of continuous media. 6 ref. G. A. Geniyev.

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Acc. Nr. AP0036912 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0007

M

69118y Physicochemical factors in mineral metamictimtion—in particular, that of zircons. [redacted] (V. I. Vernadskii Inst. Geochem. Anal. Chem., Moscow, USSR). *Geokhimiya* 1970, (1), 54–8 (Russ). Minerals which are formed according to phase diagrams which show the decompn. of compds. in the solid state below the eutectic temp., as well as of the peritectic type and which contain as isomorphous admixts. radioactive elements, may be subject to metamict decay. Such a mineral is, for instance, zircon. If the formation of the mineral occurs by the way of primary crystn. from a melt, for instance in a congruent max., crystals of this mineral will not be subject to metamictization even if their components are radioactive elements. Many proper U and Th minerals are examples of such nonmetamict radioactive minerals. BLIR

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REEL/FRAME 19721837

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PRIMARY CANCER OF THE LIVER -U-

AUTHOR--MAKAROV, F.D., SEMENOV, A.P., MAKSIMENKO, I.D., MAKSIMENKO, O.I.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 9-12

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, CANCER, DIAGNOSTIC MEDICINE, AUTOPSY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0799 STEP NO--UR/0475/70/000/003/0009/0012

CIRC ACCESSION NO--AP0102762

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102762

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OF 3552 AUTOPSIES PRIMARY CANCER OF THE LIVER WAS FOUND IN 26 CASES (0.73PERCENT), AMONG CANCERS OF OTHER SITES IT OCCUPIED 4.6PERCENT. MALES 22, FEMALES 4; AGE: FROM 20 TO 80 YEARS. PRIMARY CANCER OF THE LIVER WAS CLINICALLY DIAGNOSED IN 11 CASES. CLINICAL DIAGNOSIS PROVED PRACTICALLY POSSIBLE IN THE TERMINAL STAGE. PECULIAR CHARACTERISTICS OF THE CLINICAL COURSE ARE DESCRIBED. INDICATIONS FOR DIAGNOSTIC LAPAROTOMY ARE DISCUSSED.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910007-9"

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CONTACTLESS WIDE PULSE TEMPERATURE CONTROL FOR THERMOPLASTIC AUTOMATED HEATING -U-
AUTHOR-(03)-KRUCHENYKH, G.S., MAKAROV, G.A., TELIS, A.I.

M

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVODSTVO, NO. 2, 1970, PP 20-24
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--THERMOPLASTIC MATERIAL, HEATING, PLASTIC FABRICATION, AUTOMATIC CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0266 STEP NO--UR/0182/70/000/002/0020/0024

CIRC ACCESSION NO--AP0100775
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100775

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESSING OF THERMOPLASTIC MATERIALS TAKES PLACE UNDER HEATING, WHERE THE RAW MATERIAL IS PLACED IN A SPECIAL HEATING CYLINDER ON THE OUTSIDE SURFACE OF WHICH ARE DISTRIBUTED ELECTRICAL THERMAL ELEMENTS. THE TEMPERATURE IN THE HEATING ZONE OF THESE CYLINDERS MUST BE CAREFULLY CONTROLLED TO PRODUCE HIGH QUALITY PLASTICS; AN ACCURACY OF PLUS OR MINUS 2DEGREES C IS NECESSARY. THE AUTHORS PRESENT EXPERIMENTALLY OBTAINED CURVES INDICATING THAT THE PROCESS OF HEATING THE MATERIAL IS AUTOMATIC THERMOPLASTIC MACHINES IS CHARACTERIZED BY INERTIA. THE PRESENT DAY HEATING CONTROL SYSTEM USING A TWO POSITION REGUALTOR OF THE "ON,OFF" TYPE IS UNSATISFACTORY BECAUSE OF THE OSCILLATIONS FROM ONE POSITION TO THE OTHER; THESE OSCILLATIONS CANNOT BE REDUCED BECAUSE OF THE INERTIA OF THE SYSTEM. SUCH DEFECTS AS WELL AS THE MORE MINOR ONES TO BE FOUND IN IMPROVED SYSTEMS OF FOREIGN FIRMS, SOME OF WHICH ARE DISCUSSED IN THIS ARTICLE, ARE ELIMINATED IN A SEMICONDUCTOR ELECTRONIC HEATING CONTROL SYSTEM DEVELOPED AND TESTED BY THE UKRAINIAN SCIENTIFIC RESEARCH INSTITUTE FOR MACHINES AND INSTRUMENTS (UKRNIISIP). A BLOCK DIAGRAM, SCHEMATIC, AND LIST OF TECHNICAL SPECIFICATIONS FOR THE INSTRUMENT ARE GIVEN. THOSE WHO PARTICIPATED IN THE DEVELOPMENT AND TESTS WERE E. I. DAVYDOVA, V. I. PERLOVA, AND S. S. OLENDER. A COMPLETE DESCRIPTION OF THE CIRCUIT'S OPERATION IS GIVEN.

UNCLASSIFIED

USSR

UDC: None

MAKAROV, G. I., NOVIKOV, V. V., and ORLOV, A. B.

"Present State of ULF Propagation Research in the Earth-Ionosphere Waveguide Channel"

Gorkiy, Izvestiya VUZov SSSR Radiofizika, Vol. 13, No. 3, 1970, pp 321-355

Abstract: This is a review article summarizing the most recent research in ultra low-frequency electromagnetic wave propagation. It is divided into three sections: the first deals with the general theory of ULF; the second with approximate research methods into the behavior of characteristic quantities; the third with the results of the theoretical computations and their comparison with experimental data. The ULF range is here defined as extending approximately from 1 to 60 KHz. Interest in ULF has been lively since the 50's, and its possibilities for communication on a global scale, especially for frequencies in the 10-20 KHz range, has aroused a great deal of interest. An important characteristic of

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USSR

MAKAROV, G. I., et al, Izvestiya VUZov SSSR Radiofizika, Vol. 13, No. 3, 1970, pp 321-355

such fields is their high stability compared to the unpredictability of the irregular ionospheric variations. This suggests, according to the authors, that they might be useful in phase navigation systems.

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MAKAROV, G. F.

LIFE SUPPORT SYSTEMS

COLEEN

JPRS 54493

16 November 1971

UDC 612:523

EXTERNAL RESPIRATION, GAS METABOLISM, AND ENERGY EXPENDITURE IN THE CASE OF VARYING HUMAN ACTIVITY UNDER CONDITIONS OF WEIGHTLESSNESS

G2O4557

[Article by I.I. Fas'yan, G.F. Makarov, V. I. Sokolov, Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, 1971, pp 673-681]

A study was made of human external respiration, gas metabolism, and energy expenditure during performance of various tasks carried out under conditions involving brief periods of weightlessness created during aircraft flights along parabolic trajectories and during simulated weightlessness (in a water medium and on special floating stands).

The tests that were conducted indicated that under conditions of weightlessness, regardless of the way in which they were simulated, human energy expenditures on the performance of the same tasks were 22-42 percent higher than under ordinary conditions on the ground, both when the individuals being tested were normally dressed and when they were special garments. A tendency was noted toward a decrease in the energy consumption rate under weightless conditions as the individuals being tested became accustomed to these conditions. The authors are of the opinion that the metabolic shifts that were observed are connected with the general nonspecific reaction of the organism to the influence of unusual physical factors (weightlessness), causing a disturbance of motion coordination.

USSR

UDC 621.371.029.4

MAKAROV, G. I. and NOVIKOV, V. V.

"Propagation of Ultra-Long Waves in the Earth-Ionosphere Waveguide Channel (Review)"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 537-550 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A351)

Translation: A physical model of the lower ionosphere is described and methods are given for its theoretical analysis, in addition to the characteristics of ultra-long wave fields in the near and far zones. Attention is directed to the fact that the existing theory unsatisfactorily describes some characteristics of ultra-long wave propagation. A. L.

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USSR

UDC:538.566+621.371

MAKAROV, G. I., TIKHOMIROV, N. P.

"Tropospheric Refraction of Radio Waves"

Probl. Difraktsii i Rasprostr. Voln [Problems of Diffraction and Propagation of Waves -- Collection of Works], No. 10, Leningrad University Press, 1970, pp. 116-131 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh226 by V. A. Andrianov)

Abstract: The influence of tropospheric refraction on the propagation of low-frequency radio waves is studied from the standpoint of the possibility of solving the reverse problem (determination of impedence as a function of frequency of field received). The field of a vertical electric dipole on an impedance sphere of large radius is studied. The sphere is assumed to be a rounded heterogeneous medium with dielectric permeability ε, depending only on radius ε (r) and the corresponding exponential profile of atmospheric heterogeneity. The solution of the

USSR UDC:538.566+621.371

MAKAROV, G. I., TIKHOMIROV, N. P., Probl. Difraktsii i Rasprostr. Voln [Problems of Diffraction and Propagation of Waves -- Collection of Works], No. 10, Leningrad University Press, 1970, pp. 116-131 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh226 by V. A. Andrianov)

problem is obtained by the method of normalized waves. In order to produce simple analytic variations of the natural numbers of the problem ν_s withimpedence δ_g, frequency ω, and the heterogeneity parameters of the atmosphere, the first approximation of the Galerkin method is used. The condition of acceptability of the concept of equivalent radius of the earth for low and high frequencies is formulated. An analytic solution of the reverse problem is obtained from taking into consideration exponential profile-type atmospheric heterogeneity.

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1/2 038 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--CURRENT STATE OF INVESTIGATIONS OF VLF PROPAGATION IN THE EARTH IONOSPHERE WAVEGUIDE CHANNEL -U-
AUTHOR-(03)-MAKAROV, G.I., NOVIKOV, V.V., ORLOV, A.B.

COUNTRY OF INFO--USSR

SOURCE--IZVYUZ. RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 321-355

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, ELECTRONICS AND ELECTRICAL ENGR., EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--VLF PROPAGATION, WAVEGUIDE, ELECTROMAGNETIC FILED, IONOSPHERE, EARTH PLANET, APPROXIMATION METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0847 STEP NO--UR/0141/70/013/003/0321/0355

CIRC ACCESSION NO--AP0110568
UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0110568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE MAIN FEATURES OF ELECTROMAGNETIC FIELDS IN THE VLF SPECTRAL RANGE EXTENDING FROM 1 TO 60 KHZ. THE CURRENT STATE OF THE GENERAL THEORY FOR THESE WAVELENGTHS IS REVIEWED IN TERMS OF PROPAGATION IN THE EARTH IONOSPHERE WAVEGUIDE, EFFECTS OF IONOSPHERIC IRREGULARITIES, AND THE INFLUENCE OF THE DAYTIME AND NIGHTTIME SEGMENTS OF THE WAVEGUIDE. RECENTLY DEVELOPED APPROXIMATE METHODS OF CALCULATION ARE DESCRIBED WHICH MAKE IT POSSIBLE TO CONDUCT QUALITATIVE INVESTIGATIONS. FORMULAS ARE GIVEN FOR ANALYZING THE PHASE VELOCITY ATTENUATION OF NORMAL WAVES AS FUNCTIONS OF FREQUENCY AND WAVEGUIDE PARAMETERS. THE MAIN RESULTS OF PUBLISHED NUMERICAL CLAUCLATIONS ARE DESCRIBED AND COMPARED WITH EXPERIMENTAL DATA. FACILITY: LENINGRADSKII GOSUDARSTVENNYI UNIVERSITET, LENINGRAD, USSR.

UNCLASSIFIED

USSR

AMBARTSUMYAN, R. V., LETOKHOV, V. S., MAKAROV, G. N., PLATOVA, A. G., PURETSKIY, A. A., and TUMANOV, O. A.

"Investigating the Exciation of Oscillatory Levels in $N^{14}H_3$ by Radiation of a CO_2 Laser"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 3, 1973, pp 771-784

Abstract: The difficulty in the way of developing a precise explanation of the processes leading to the dissociation and chemical reactions of molecules excited by infrared radiation is the result of the paucity of effective methods for investigating the oscillatory state. In this paper, a direct method is developed for studying the population of oscillatory molecule levels from the intensity of the absorption lines in molecular transitions from the oscillatory state to the excited electronic state. Experiments for studying the population change of oscillatory levels in the NH_3 molecule under the excitation of a CO_2 laser are described, and a diagram of the experimental apparatus is given together with an explanation of its operation. The electron-oscillatory transmission spectrum of ammonia in the 2000-2250 Å range with and without the laser is produced. The theory of the phenomenon is developed and its results compared with the experimental results.

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1/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--ROTARY RING FURNACE PREPARATION OF LUMP SMOKELESS HOUSEHOLD FUEL FROM CENTRAL ASIAN COALS -U-

AUTHOR--GRACHEV, G.I., ZAGORETS, A.M., MAKAROV, G.N., PEREVEZENTSEV, A.V., SYSKOV, K.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TVERD. TOPL. 1970, (1), 78-85

DATE PUBLISHED--------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--COAL, PYROLYSIS, SOLID FUEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/2033 STEP NO--UR/0467/70/000/001/0073/0085

CIRC ACCESSION NO--AP0109965

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0109965

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE FUEL WAS PREPD. BY GRANULATION AND THERMAL TREATMENT OF MIXTS. OF 55-65 PARTS OF CENTRAL ASIAN NON CAKING COALS WITH 25-35PARTS OF SIFTINGS OF KARAGANDA COALS. THE MIXTS. ARE INTRODUCED INTO A ROTARY RING FURNACE AT 750DEGREES AND SLOWLY HEATED TO 1050DEGREES WHILE THE HEARTH REMAINED AT 540DEGREES. WITH THE TITLE FUEL THE EFFICIENCY OF HOUSEHOLD OVENS REACHED 80PERCENT WHILE WITH SIMILAR BRIQUETS NOT THERMALLY TREATED THE COEFF. WAS SMALLER THAN 65PERCENT.

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1/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--ROTARY RING FURNACE PREPARATION OF LUMP SMOKELESS HOUSEHOLD FUEL FROM CENTRAL ASIAN COALS -U-

AUTHOR--GRACHEV, G.I., ZAGORETS, A.M., MAKAROV, G.N., PEREVEZENTSEV, A.V., SYSKOV, K.I.

COUNTRY OF INFO--USSR

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SUBJECT AREAS--PROPULSION AND FUELS

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PROXY REEL/FRAME--1990/2033 STEP NO--UR/0467/70/000/001/0078/0085

CIRC ACCESSION NO--AP0109965
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2/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0109965

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE FUEL WAS PREPD. BY GRANULATION AND THERMAL TREATMENT OF MIXTS. OF 55-65 PARTS OF CENTRAL ASIAN NON CAKING COALS WITH 25-35PARTS OF SIFTINGS OF KARAGANDA COALS. THE MIXTS. ARE INTRODUCED INTO A ROTARY RING FURNACE AT 750DEGREES AND SLOWLY HEATED TO 1050DEGREES WHILE THE HEARTH REMAINED AT 540DEGREES. WITH THE TITLE FUEL THE EFFICIENCY OF HOUSEHOLD OVENS REACHED 80PERCENT WHILE WITH SIMILAR BRIQUETS NOT THERMALLY TREATED THE COEFF. WAS SMALLER THAN 65PERCENT.

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USSR

AMBARTSUMYAN, R. V., LETOKHOV, V. S., MAKAROV, G. N., PURETSKIY, A. A.,
Institute of Spectroscopy, Academy of Sciences of the USSR

"Laser Separation of Nitrogen Isotopes"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17, No 2, 20 Jan 73, pp 91-94

Abstract: A report is given on the first highly effective separation of isotopes by the method of selective, two-stage photodissociation of molecules. In the described experiments, nitrogen isotopes ^{14}N and ^{15}N were separated in photodissociation of ammonium molecules $^{14}NH_3$ and $^{15}NH_3$. The method was proposed by Ambartsumyan and Letokhov (IREE J. Quant. Electr., QE-7, 305, 1971; Appl. optics, 11, 354, 1972) as a procedure for selective action of radiation on matter and consists in the following: Monochromatic emission of frequency ν_1 selectively excites oscillatory transition of molecules of only one isotopic composition. The molecules are simultaneously exposed to light of frequency ν_2 whose quantum energy is sufficient for photodissociation of only the vibrationally excited molecules. A diagram of the experiment is given and explained.

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USSR

UDC: 669.2:669.046.54/55

ANDREYEV, A. D., MAKAROV, G. S.

"Some Characteristic Features of the Development of the Technology of Refining of Nonferrous Alloys"

Moscow, Tsvetnyye Metally, No 7, Jul 73, pp 64-66.

Abstract: The current state of refining of nonferrous alloys to remove gasses and nonmetallic inclusions is studied. Certain problems are stated concerning effective application of various refining methods. Methods include blowing of gasses, treatment with fluxes in a floating unit, treatment with fluxes with filtration through glass fabric, electric-flux refining, blowing of a stream of neutral gas through the melt during pouring and vacuum treatment in a mixer.

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USSR

UDC 669.71.018.9.4

GOGIN, V. B., MAKAROV, G. S., MITVOL', L. S., MITIN, V. P.

"Some Problems of Processing a Melt of Aluminum Alloys in a Vacuum"

Metalloved. splavov legkikh met. -- V sb. (Physical Metallurgy of Alloys of Light Metals -- collection of works), Moscow, Nauka Press, 1970, pp 87-91 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G204)

Translation: Results are presented from degassing alloys based on aluminum in a six-ton vacuum mixer. Mixing the liquid bath during the evacuation process reduces the H content in the melt. It is necessary to select the vacuum treatment parameters beginning with the presence of volatile components in the alloys. There are 5 illustrations, 2 tables, and a 6-entry bibliography.

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USSR

UDC 669.71.412

ANDREYEV, A. D., MAKAROV, G. S., GOGIN, V. B.

"Analysis of Some Laws of the Process of Degassing a Melt When Blowing It With an Inert Gas"

Metalloved. splavov legkikh met -- V sb. (Physical Metallurgy of Light Metal Alloys -- collection of works), Moscow, Nauka Press, 1970, pp 72-80 (from RZh-Metallurgy, No 4, Apr 71, Abstract No 4G175)

Translation: A kinetic equation is derived which describes the process of degassing aluminum during blowing of the melt by an inert gas. The effect of various factors on the degassing process is investigated. The effectiveness of using an inert gas when blowing the melt through tubes in a reverberatory furnace is low. It can be improved by making the bubbles of inert gas smaller and creating conditions insuring contact of the entire mass of the melt with the inner gas. There are 5 illustrations, 2 tables, and a 7-entry bibliography.

1/1

Analysis and Testing

USSR

UDC 669.716:621.745.55:66.067

ANDREYEV, A. D., MAKAROV, G. S., and GOGIN, V. B.

"Analysis of Some Regularities of the Degassing Process of a Melt by Its Blowing Through With an Inert Gas"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 72-80, resume

Translation: A kinetic equation has been developed which characterizes the degassing process by blowing through a melt with an inert gas. The effect of various factors on degassing is discussed. It is demonstrated that the efficiency of using an inert gas by blowing a melt through tubes in a reverberating furnace is not great. It can be increased by size reduction of bubbles of the inert gas and creation of conditions providing a contact of the whole melt mass with the inert gas. Five figures, two tables, seven bibliographic references.

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USSR

UDC 669.716:621.745.55:66.067

GOGIN, V. B., MAKAROV, G. S., MITVOL', L. S., and MITIN, V. P.

"Some Problems in the Vacuum Processing of the Melt of Aluminum Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 87-91, resume

Translation: Results of degassing aluminum alloys in a vacuum holding furnace of 6 tons capacity are presented. It was found that mixing the liquid bath in the vacuum evaporation process decreases the hydrogen content in the melt. It is demonstrated that the selection of the parameters of vacuum processing must be made proceeding from the presence of highly volatile components in the alloys. Five figures, two tables, six bibliographic references.

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USSR

UDC 669.71.41

MAKAROV, G. S.

"Regularities of Removal of Hydrogen During Vacuum Processing of Fused Aluminum"

Tekhnol. legkhikh splavov. Nauchno-tekhn. byul. VILSa, [Technology of Light Alloys. Scientific and Technical Collection of All-Union Institute of Light Alloys], No. 4, 1970, pp. 37-42, (Translated from Referativnyy Zhurnal Metallurgiya, No. 1, 1971, Abstract No.1G143 by G. Svodtseva).

Translation: The basic regularities involved in the removal of H from fused Al during vacuum processing are studied. The size of H seed bubbles is calculated. When large masses of fused Al are processed in a vacuum, rapid and effective degassing can be achieved by passing the entire mass of liquid metal through the area of bubble separation of H or by using methods intensifying gas separation throughout the entire volume of the bath. 4 figures; 7 biblio. refs.

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M0047001

UR 0482

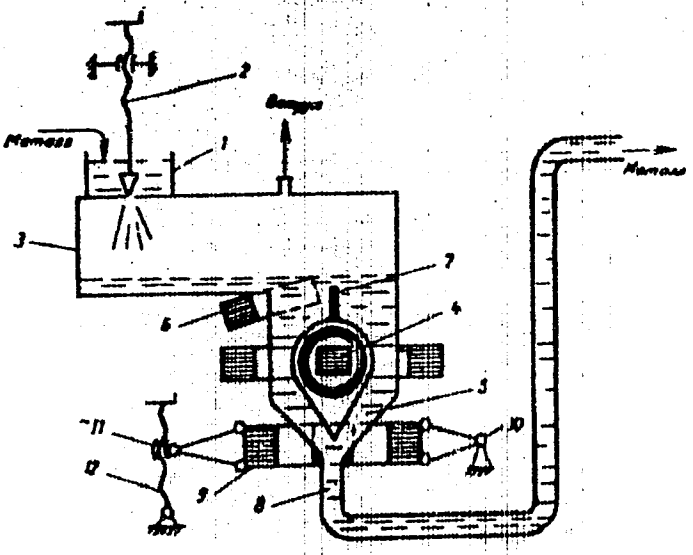
Soviet Inventions Illustrated, Section I Chemical, Derwent.

242936 VACUUM SYSTEM for an electric furnace permits mixing and heating of the degasified metal and regulation of its discharge. The melt flows from the receiver 1 through an orifice 2 into a vacuum chamber 3. The chamber outlet forms part of the pump furnace 4. The top of the channel 5 terminates in the chamber. Mixing of the metal is obtained due to the fact that the top of the channel is enclosed in an electromagnet 6. Partition 7 maintains required level of the melt. The discharge 8 is enclosed in an electromagnet 9 which is hinged on a stand 10 and its position is regulated by a screw 12 and a nut 11.

29.1.66 as 1052323/22-2 G.S. MAKAROV (17.9.69) Bul. 16/5.5.69. Class 18b, Int. Cl. C 21c.

19790421

AA00467001



2/2

19790422

AA0038315

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

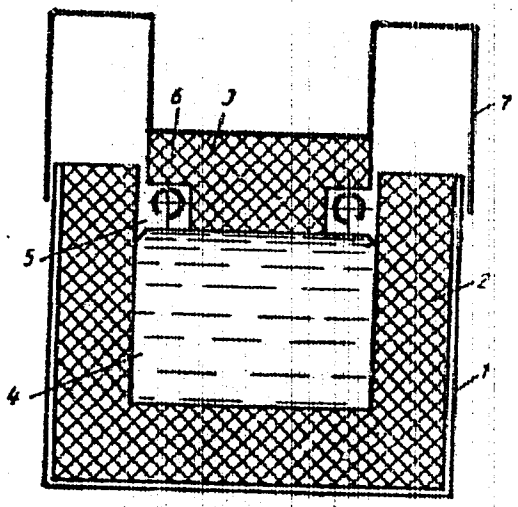
238730 LAUNDER FOR MOLTEN ALUMINIUM AND ITS ALLOYS has slots (5) and tubes (6) in its lid (3) to pipe protective gas in, at the same time it is cowled (7) to reduce operative gas losses. The lid floats freely on the actual molten liquid in the launder and thus prevents impurities entering, at the same time protecting from the atmosphere.

18

AUTHORS: Makorov, G. S.; Andreyev, A. D.; Zakharevich, N. I.; Alekhin, A. A.; and Kirsanov, V. I.

19731411

AA0038315



4.6.66 as 1082038/22-2. MAKAROV.G.S.et al.(19.8.69)
Bul 10/10.3.69. Class 31b^2. Int.Cl.B 22d.

19731412

USSR

GLUSHKOV, V. M., DERKACH, V. P., MAKAROV, G. T., RAKITSKIY, V. R., ZGUROVETS, L. YA., KLIMENTOVICH, V. A., BLASENKO, V. M. and ZHURIBIDA, V. I.

"Automated System for Control of Technological Processes in the Microelectronics of the 'Kiev-70'"

Metody Minnatyuriz. i Avtomatiz. Proiz-va Komponentov EVM [Methods of Miniaturization and Automation of the Production of Computer Components -- Collection of Works], Kiev, 1972, pp 3-11 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V662)

Translation: An automated control system for technological processes in microelectronics (Kiev-70) is described on the example of the basic application of automated programmed control of a cathode-ray (ion-ray) installation. A structural plan of the "Kiev-70" system is presented.

1/1

USSR UDC: 621.396.622

SHER, V. B., KAYEVSKIY, Z. M., MAKAROV, G. V.

"A Synchrophase Video Pulse Frequency Multiplier Based on Semiconductor Devices"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz'", 1971, pp 107-112 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D68)

Translation: Devices are described for frequency multiplication and division of video pulses, keeping input and output signals in phase. Two illustrations, bibliography of one title. Resumé.

1/1

USSR

UDC 665.59.620.191/.193

PORUTSKIY, G. V., MAKAROV, I. A., STROMENKO, A. Ye., and ROZDAYBEDIN, A. S., All Union Scientific Research Institute of Petrochemistry, Main Petroleum Chemistry Industry, UkrSSR

"Preparation of Sea Water and Corrosion of the Equipment of Petroleum Plants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 4, 1973, pp 39-41

Abstract: Depending on the conditions of circulation flow rate and temperature of water, chemical and biological changes occur in sea water resulting in sedimentation, corrosion and bioformations. Several factors important in considering sea water for cooling and recirculation have been discussed: index of stability based on the content of CO_2, effect of temperature, content of petrochemicals; all of these factors increase the corrosiveness and lead to higher biological activity in sea water.

1/1

USSR

MAKAROV, I. A., Chair of Hospital Therapy, Gor'kiy Medical Institute

"The Role of Blood Vessels in Poststress Fluctuations in the Eosinophil Count"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 6, Nov/Dec 70, pp 16-18

Abstract: Four-part clinical and experimental studies were conducted on intravascular and vascular-tissue redistribution of eosinophils during stress. Studies included (1) study of intravascular redistribution of eosinophils in 50 persons (44 suffering from adrenocortical dysfunction and 6 apparently healthy) following the administration of ACTH; (2) simultaneous study of shifts in the eosinophil count and peripheral vascular permeability in 16 persons given hydrocortisone; (3) experimental study of eosinopenia in 10 rats given hydrocortisone, eosinopenic reaction following previous administration of hyaluronidase, and vascular permeability after 5 days of eating calcium gluconate as part of the regular rations; (4) similar study in 20 patients suffering from addisonism. The results of the studies indicate that the poststress eosinopenia induced by hormones was caused by the intravascular and vascular-tissue redistribution of the cells. The vascular-tissue redistribution occurred despite decreased capillary permeability. The artificially

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USSR

MAKAROV, I. A., Kazanskiy Meditsinskiy Zhurnal, No 6, Nov/Dec 70, pp 16-18

increased permeability facilitated extravasation of the cells, thereby intensifying the eosinopenic reaction.

USSR

UDC: 616.155.35-007.15:616.45-001.1/.3.07

MAKAROV, I. A., Chair of Hospital Therapy, Therapeutic Faculty, Gor'kiy Medical Institute

"The Role of Histaminemia in Modifying the Number of Eosinophils Under Stress Conditions"

Kiev, Vrachebnoye Delo, No 1, Jan 71, pp 65-68

Abstract: A study was conducted to determine the effect of total and local accumulation of histamine in the organism on the number of eosinophils circulating under stress conditions. In one series of experiments, the effect of an increase in the histamine content in organs and tissues on the number of circulating eosinophils in the organism of rats weighing 200 grams was studied. In a second series, the effect of a block of endogenous histamine in patients with disorders of the hypophysisadrenal system was studied. Total histaminemia was induced in rats by administration of 0.5 ml of a 0.1% solution of histamine hydrochloride; local histaminemia was induced by rubbing 1 ml of a 0.1% solution of histamine into the skin. The effect of histaminemia induced by intramuscular administration of 1 ml of a 0.01% solution of morphine on the eosinophil level in the peripheral blood was also studied. The block of endogenous eosinophils in the second part of the

USSR

MAKAROV, I. A., Vrachebnoye Delo, No 1, Jan 71, pp 65-68

experiment was accomplished by intramuscular administration of adrenocorticotropic hormone. The experiments established that total histaminemia is accompanied by the development of eosinophilia and local histaminia, by eosinopenia. Under stress conditions, histamine is liberated from the organs and tissues. As a result, a chemotactic migration of eosinophils from blood vessels and tissues takes place, thereby reducing the number of these cells in the peripheral blood. A block of endogenous histamine tends to mobilize the cells from the bone marrow, inducing a paradoxical reaction.

2/2

UDC 51

USSR

YAMPOL'SKIY, V. Z., MAKAROV, I. P.

"Algorithm for Solving a Classification Problem"

V sb. Mat. metody issled. i optimiz. sistem (Mathematical Methods of Investigation and Optimization of Systems -- collection of works), Kiev, 1971, pp 302-314 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V486)

Translation: The nonformalized statement of this problem has the following form. There are n objects of any nature each of which is characterized by a fixed set of parameters. It is necessary togroup the objects in a series of subsets called classes. The classification criterion is minimization of a loss functional. In the general case it must consider both the losses from the difference of objects inside the classes and the losses connected with the number of classes also the losses caused by scattering of classes with respect to size. In addition, the solution of the problem can have additionnl restrictions imposed on it determined by the specific nature of the objects subject to classification. An example of this condition is giving the upper bound for the size of the classes.

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UDC: 51

USSR

YAMPOL'SKIY, V. Z., MAKAROV, I. P.

"Solution of the Problem of Optimum Distribution of a Set of Jobs"

Mekhaniz. i avtomatiz. upr. Nauch.-proizv. sb. (Mechanization and Automation of Control. Scientific-Production Collection), 1971, No 6, pp 9-10 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V469)

Translation: The paper deals with problems of constructing a mathematical model of the solution for the problem of finding the optimum distribution of a set of jobs among the subdivisions of some organizational system. Two models with Boolean variables are written out. [From the authors' abstract].

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USSR

YAMPOL'SKIY, V. Z., MAKAROV, I. P.

"Statement and Solution of One Classification Problem"

Kibernetika i vuz. [Cybernetics and the University -- Collection of Works], No 4, Tomsk, 1971, pp 11-32, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V424 by the author's).

Translation: A statement is presented of a classification problem of a rather general type with a criterion considering losses from various objects within classes, losses from the number of classes, losses from the spread of classes as to magnitude. An algorithm is suggested based on the method of branches and bounds for solution of this problem with a fixed number of classes and linear dependence of losses on the difference of objects within classes, on the spread of classes as to magnitude and also with limitations on the magnitude of classses.

Welding

USSR

UDC 621.774.2

MATVEYEV, Yu. M., MAKAROV, I. P., KRYUKOV, V. N., ZUBAREVA, V. A., SAMARYANOV, Yu. V., ANTIPOV, B. F., KOZLOV, D. G., and ZIMINA, N. G., Ural Scientific Research Pipe Institute, Vyksunskiy Metallurgical Plant

"Production of Furnace-Welded Pipes With Oxygen Blowing of Skelp Edges"

Moscow, Metallurg, No 1, Jan 71, pp 34-35

Abstract: The quality of furnace-welded pipe is assessed by the welded seam quality, which is a function of the chemical composition of the metal, reduction in the welding pass, heating temperature, and the finish of the edges to be welded. In order to remove the scale and preheat the metal prior to welding, the edges are blown with high-pressure air. Blowing with oxygen makes it possible to raise the temperature of the edges. Oxygen facilitates the melting of refractory oxides and their removal from the surface of the skelp. The use of oxygen for blowing skelp edges on the furnace welding line of the Vyksunskiy Metallurgical Plant resulted in a marked increase in the quality of pipes. The strength of the weld in cone flaring tests was found to increase more than six-fold and the weld structure improved as well. The yearly savings with the use of oxygen on one mill was about 50,000 rubles.
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1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REFLECTION OF ELECTRONS BY THIN FILMS OF A SOLID -U-

AUTHOR-(04)-VYATSKIN, A.YA., KABANOV, A.N., MAKAROV, K.A., TRUNEV, V.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, 1970, PP 565-570

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--ELECTRON REFLECTION, THIN PLATE, FREE PATH, MATHEMATIC ANALYSIS, THIN FILM SEMICONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1361 STEP NO--UR/0109/70/000/003/0565/0570

CIRC ACCESSION NO--AP0123319

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0123319

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SEMIEMPIRICAL METHOD WAS USED TO DERIVE EXPRESSIONS FOR THE INTEGRAL COEFFICIENT OF REFLECTION, PATH DISPERSAL OF REFLECTED ELECTRONS, AND MEAN FREE PATH AS A FUNCTION OF INITIAL ENERGY. THIS WAS DONE ON THE BASIS OF EXPERIMENTAL RESULTS OBTAINED EARLIER (1-2) FOR THE COEFFICIENTS OF REFLECTION AND PENETRATION OF MEAN ENERGY ELECTRONS (KEV UNITS AND KEV TENS) IN THIN FILMS OF A SOLID (METALS AND SEMICONDUCTORS). THE OBTAINED RESULTS ARE IN GOOD AGREEMENT WITH TEST DATA.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INERATICN OF INERT GAS IONS WITH THIN FILMS OF A SOLID -U-

AUTHOR-(03)-VYATSKIN, A.YA., MAKAROV, K.A., ALEKSEYEV, V.V.

CCUNTRY CF INFC--USSR

SCURCE--MCSCCw, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, 1970, PP 558-564

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INERT GAS, ION, METAL FILM, GERMANIUM SEMICONDUCTOR, SILICON SEMICCNDUCTOR

CCNTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1362 STEP NO--UR/0109/70/000/003/0558/0564

CIRC ACCESSICN NO--AP0123320

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123320

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PRESENT A THEORETICAL DISCUSSION OF EXPERIMENTAL CHARACTERISTICS OBTAINED IN EARLIER WORK (1-4) FOR THE PENETRATION, REFLECTION, AND ABSORPTION OF INERT GAS IONS (HE PRIME POSITIVE, NE PRIME POSITIVE, AND AR PRIME POSITIVE) WITH MEAN ENERGY VALUES OF E SUB0 EQUALS 3-30KEV IN THIN FILMS OF METAL (AL, CU, AG, AND AU) AND SEMICONDUCTORS (SI AND GE). A METHOD IS PROPOSED FOR DETERMINING THE SCATTERING (DISTRIBUTION) OF TRANSVERSE MEAN FREE PATH (IONS WHICH DID NOT PASS THROUGH), OF ABSORBED AND OF REFLECTED IONS. TRANSVERSE MEAN FREE PATH SCATTERING CURVES ARE OBTAINED FOR THE MATERIALS STUDIED. AVERAGE TRANSVERSE MEAN FREE PATHS ARE INTERPOLATED AND THEIR DEPENDENCE ON INITIAL ION ENERGY EXPLAINED. CHARACTERISTICS ASSOCIATED WITH THE INTERACTION OF INERT GAS IONS WITH A SOLID ARE DISCUSSED.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

MAKAROV, K. S., and KURYGIN, G. V.

"Effect of Urea on the Toxicity of Casein Plastein"

Nauchn. dokl. vyssh. shkoly. Biol. n. (Scientific Reports of Higher Schools. Biological Sciences), 1970, No 12, pp 35-37 (from RZh-Biologicheskaya Khimiya, No 10, May 71, Abstract No 10 F1696 from the resumé)

Translation: The protein-like substance casein plastein (I) which has a molecular weight of about 5000 when treated with a solution of 8 M urea loses much of its toxicity for rats after intravenous injection of a solution of native I. This appears to be the result of conformational changes in the structure of I and it suggests that I, which contains all the amino acids of the original protein, has a secondary structure.

1/1

USSR

UDC: 8.74

MAKAROV, L. I.

"Systems With Global Rearrangement in a Computer Medium"

V sb. Vychisl. sistemy (Computer Systems--collection of works), Novosibirsk, 1971, pp 90-97 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V489)

Translation: An evaluation is given of the reliability of programs of a computer medium with loaded reserve in the case of global rearrangement. Global rearrangement is understood to mean conversion of the program of the computer medium to an equivalent program with respect to the operator executed assuming predetermined functional constraints in given elements of the computer medium with the aid of reserve elements, each of which can be used to replace an arbitrary element of the program. A system with global rearrangement in a computer medium is understood to mean the totality of the program of the computer medium, the global reserve of the program, and a device for continuous monitoring and rearrangement. It is assumed in this regard that the device for monitoring and rearrangement is absolutely reliable and that the time of rearrangement is equal to zero. The reliability of the system is understood to be the probability of development of at least one failure which makes rearrangement of the program impossible. The appendix gives an example of an algorithm of global rearrangement of a correct program (shift algorithm). V. Mikhayev.
1/1

USSR

UDC: 534.322.3+534.83

YEFIMOV, Yu. S., MAKAROV, L. T., MYASNIKOV, L. L., FINAGIN, B. A.

"A Maskless, Fiber-Optics Acoustic Analyzer"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1972, vyp. 77, pp 45-48 (from RZh-Fizika, No 5, May 73, abstract No 5Zh591 by R. I. G.)

Translation: A device is described which is designed for analyzing complex acoustic and electric signals by using a multichannel filter made of fiber light guides. Oscillations are optically fixed by passing light through resonating fibers. The maskless analyzer developed by the authors uses the effect of intensity modulation of light as it passes through vibrating fiber-optics light guides. It is experimentally shown that the maskless analyzer accomplishes linear conversion of a signal over a fairly wide range of dynamic variation.

1/1

USSR

UDC 616.12-78

MAKAROV, L. V., and SUPER, N. A., All Union Scientific Research Institute of Surgical Apparatus and Instruments, Moscow

"Selecting the Structural Design of an "Artificial Heart" of the Diaphragm Type"

Moscow, Meditsinskaya Tekhnika, Vol 4, No 3, 1970, pp 18-22

Abstract: This theoretical article (with diagram) explains the structural features of artificial hearts with diaphragm or cavity pumps.

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USSR

UDC 541.124/128

MANAKOV, M. N., MAKAROV, M. G., KOVALENKO, L. V., YAGNYATKOVA, Z. I., and SHVETS, N. A., Moscow Chemical-Technological Institute Imeni D. I. Mendeleyev

"Kinetics of the Reaction of Aromatic Aldehydes With Dialkylphosphinic Acids (Utilization of the Experiment Planning Method)"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No. 3, Mar 72, p 804

Abstract: Reaction of dioctylphosphinic acid with benzaldehyde in presence of sodium ethoxide has the following kinetics:

$$W = A_0 \exp(-E/RT)\ c_k^{\alpha}\ c_d^{\beta}\ c_b^{\gamma}$$

where c_k^{α}, c_d^{β}, c_b^{γ} are the concentrations of the catalyst, the dioctylphosphinic acid and benzaldehyde respectively. The orthogonal Box Plan was used in studying the kinetics of this reaction; the following results were obtained: $\lg A_0 = 5.520 \pm 0.060$; $\alpha = 0.960 \pm 0.020$; $\beta = 0.884 \pm 0.009$; $\gamma = 1.066 \pm 0.011$; and $E = 9.66 \pm 0.11$ Kcal/mole.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THERMAL BREAKDOWN OF RUBBER IN SUPERHEATED WATER VAPOR AT ATMOSPHERIC PRESSURE -U-

AUTHOR-(05)-MAKAROV, V.M., EPSHTEYN, V.G., ZAKHAROV, N.D., MAKAROV, M.M., KALOSHINA, A.V.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(2), 25-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL DECOMPOSITION, STYRENE, WEAR RESISTANCE, SYNTHETIC RUBBER/(U)SKMS50ARKM15 STYRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0387 STEP NO--UR/0138/70/029/002/0025/0027

CIRC ACCESSION NO--AP0113305

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113305

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRAIN RELAXATION PARAMETERS (V. M. MAKAROV, 1969) OF SYNTHETIC RECLAIMED RUBBER SKMS-30-ARKM-15 SHOWED THAT THE OPTIMUM TEMP. AND TIME OF RECLAIMING WITH SUPERHEATED STEAM (M. M. MAKAROV, ET AL., 1962) WERE 300DEGREES AND 180 SEC WHEN 15PERCENT PETROLEUM OIL (MAZUT) WAS ADDED TO THE RUBBER. THE PRESENCE OF MAZUT SLOWED THE CROSSLINKING OF THE RECLAIMED RUBBER WITHOUT AFFECTING THE DEVULCANIZATION RATES. THE RECLAIMED RUBBER OBTAINED BY THIS METHOD HAD BETTER HEAT STABILITY, WEAR RESISTANCE, AND FATIGUE RESISTANCE THAN OTHER RECLAIMED RUBBERS. FACILITY: YAROSLAV. TEKHNOL. INST., YAROSLAVL, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--USE OF ONE MESON APPROXIMATION TO DETERMINE PI PI INTERACTION CROSS SECTIONS -U-
AUTHOR-(04)-MAKAROV, M.M., NELYUBIN, V.V., SARANTSEV, V.V., TKACH, L.N.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 461-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PION PION INTERACTION, APPROXIMATION CALCULATION, PION PROTON INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1038 STEP NO--UR/0367/70/011/002/0461/0467

CIRC ACCESSION NO--AP0110728
UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110728

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELASTIC PI PRIME POSITIVE PI PRIME NEGATIVE INTERACTION CROSS SECTIONS ARE DETD. BY ANAL. OF EXPTL. DATA ON THE REACTION PI PRIME NEGATIVE P YIELDS PI PRIME POSITIVE PI PRIME NEGATIVE N IN THE ENERGY RANGE 360-780 MEV. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR UDC 542.91+541.6:547.431.2'118.3

MAKAROVA, N. A., NABIULLIN, V. N., MUKMENOV, E. T., and ARBUZOV, B. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"The Behavior of 2-Ethoxy-4-chloromethyl-1,3,2-dioxaphospholane on Heating"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2373-2378

Abstract: Re-esterification of triethyl phosphite with 1-chloro-1-deoxy-D,L-glycerol (I) led to the formation of 2-ethoxy-4-chloromethyl-1,3,2-dioxaphospholane (II). Study by the methods of gas-liquid chromatography and ^{31}P nuclear magnetic resonance showed that the cyclic phosphite II consisted of a mixture of a cis- and a trans-isomer with boiling points that were close to each other. The trans-isomer predominated in the mixture. On heating of II for 6 hrs at 175-90°, EtCl was evolved and a P-containing oligomer formed, apparently as a result of an inter-molecular Arbuzov rearrangement. II was also prepared by reacting I with ethyl dichlorophosphite $EtOPCl_2$ in the presence of NEt_3. Similarly, the 2-beta-chloroethoxy and 2-isobutoxy analogs of II (III and IV) were synthesized by the reaction of I with $ClCH_2CH_2OPCl_2$ and $i\text{-}BuOPCl_2$, respectively. The 2-phenoxy analog (V) of II was also prepared. The behavior and properties of compounds III-V, including the predominance of the trans-isomer

USSR

MAKAROVA, N. A., et al., Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2373-2378

in them, were consistent with the assumption of an intermolecular rearrangement. The authors thank V. V. Pomazanov, N. P. Anoshina, and E. I. Gol'dfarb for carrying out instrument measurements.

2/2

USSR UDC: 621.373

MAKAROV, N. A., MAKSIMOV, M. G., Special Design Office of Biological Instrument Building, Academy of Sciences of the USSR

"A Generator of Pneumatic or Hydraulic Pulses"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296090, division G, filed 2 Jun 69, published 12 Feb 71, p 148

Translation: This Author's Certificate introduces a generator of pneumatic or hydraulic pulses which contains a vessel, input and output chokes, and a relay device. As a distinguishing feature of the patent, the design is simplified and service life is extended by connecting the input choke to the vessel housing, together with a dripcock located above the output capillary choke.

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USSR

UDC 535.21

RYKALIN, N. N., UGLOV, A. A., and MAKAROV, N. I., Moscow

"Calculation of Heating of Films by Laser Radiation"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 3-8.

Abstract: A number of problems are studied on the heating of 2-layer materials by a local surface heat source, such as a laser beam. For thin films, the solution of the problem is found using integral transforms with respect to time and coordinates and a limit transfer as λ_1 and $a_1 \to \infty$ (λ_1 and a_1 are the heat conductivity and temperature conductivity coefficients of the upper layer), since when this condition is fulfilled the temperature through the thickness of the upper plate will be unchanged. In particular, the two-dimensional problem of heating of a 2-layered plate is studied on the assumption that the upper plate is thin, and a solution of the one-dimensional problem of heating of a film is found, considering heat emission from the surface.

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1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SURFACE SOUND WAVES THEORY IN METALS IN A WEAK MAGNETIC FIELD -U-

AUTHOR-(04)-GRISHIN, A.M., KANER, E.A., LUBIMOV, O.T., MAKAROV, N.M.

COUNTRY OF INFO--USSR

SOURCE--SOLID STATE COMMUN. (USA), VOL. 8, NO. 8, P. 581-5 (15 APRIL 1970)

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC FIELD, HIGH PURITY METAL, RAYLEIGH WAVE, SURFACE WAVE, SOUND WAVE, ELECTRON WAVEGUIDE, SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1679 STEP NO--US/0000/70/008/008/0581/0585

CIRC ACCESSION NO--AP0122009

UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122009

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS DEMONSTRATED THAT THE SURFACE ELECTRON WAVES SHOULD EXIST IN PURE METALS AND WEAK MAGNETIC FIELD NEAR THE FREQUENCIES OF THE ELECTRON TRANSITIONS BETWEEN MAGNETIC SURFACE LEVELS. SUCH WAVES ARE ABLE TO INTERACT STRONGLY WITH THE RAYLEIGH SOUND VIBRATIONS. SPECTRA DAMPING AND MUTUAL TRANSFORMATIONS OF THE ELECTRONIC AND RAYLEIGH WAVES ARE INVESTIGATED. FACILITY: KHAR'KOV STATE UNIV., USSR.

UNCLASSIFIED

UDC 8.74

USSR

MAKAROV, N. P.

"More Precise Definition of the Algorithm for One of the Secondary Programs of the Mir-I Computer"

V sb. Mashiny dlya inzh. raschetov. Vyp. 5 (Machines for Engineering Calculations Vyp. 5 -- collection of works), Kiev, 1972, pp 140-141 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V649K)

No abstract

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UDC 77

USSR

MAKAROV, N. V., GERASIMOVA, T. N., CHURAYEVA, A. M., BABINA, Z. N.

"Effect of Potassium Iodide on the Dispersion of a Photographic Emulsion and the Solubility of Silver Halide"

V sb. Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti (International Congress on Photographic Science, Moscow, 1970, Nature of Photographic Sensitivity -- Collection of Works), no place of publication given, Vneshtorgizdat, no year given, pp 309-312 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1345)

Translation: It is shown that the average area of the projection of AgBr(I) crystals of a photoemulsion of the ammonia type changes with an increase in the concentration of KBr similar to the change in the solubility of AgHal in the presence of I^- and NH_3 ions; a study of solubility therefore makes it possible to establish the change in dispersion of the emulsions. The solubility

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USSR

[illegible], no place of publication given, Vneshtorgizdat, no year given, pp 309-312

curve of AgHal has a maximum, the shape, height, and position of which depend on the KI concentration, so that at the maximum the ratio of Br^- and I^- ion concentration is close to the ratio of the solubility products of AgBr and AgI. The formation of silver iodide complexes (Ag_3I^{2+}, AgI_2^-, $Ag_2I_4^{2-}$, etc.) effecting the solubility of AgHal in the presence of ammonia occurs only for a KI concentration above 0.1 mol/l, i.e., in the range of concentrations not applicable in the synthesis of emulsions. A. L. Kartuzhanskiy.

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UDC 77

USSR

MAKAROV, N. V., POBEDINSKAYA, A. V.

"Synthesis of Photographic Emulsions With a High pBr Value to Raise Their Sensitivity"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14, pp 90-96 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1335)

Translation: An increase in the storage life of photoemulsion layers, especially those for the IR-region of the spectrum, involves raising their pBr, so that the best results are given by emulsions in which a high value of pBr is not produced in the prepared emulsion but before the beginning of the second aging. The latter requires many special conditions in carrying out the aging, of which three are studied in this paper: the concentrations of thiosulfate (I), sulfite (II), and rhodanide (III). It was established that the effect of I on the light sensitivity of the emulsion is of a complex nature: with an increase in the concentration of I the value of S^{max} initially rises and then decreases, so that to obtain a high value of S^{max} requires a smaller concentration of I for a higher

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USSR

MAKAROV, K. V., POBEDINSKAYA, A. V., Uspekhi nauchn. fotogr., [illegible]
pp 90-96

.pBr of the emulsion. An increased concentration of I, however, can lead to obtaining a high S if II is introduced into the emulsion (before and after aging), although for an optimal concentration of I the introduction of II does not give this effect and only accelerates aging without a change in the achievable S_{max}. It was shown that the presence of III can also be of value in raising S; the concentration of III should be smaller for a higher pBr. Authors abstract.

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USSR UDC 612.821.612.014.4

GOL'DBURT, S. N., and MAKAROV, P. O., Leningrad State University

"Measurement of the Time of Reaction to the Appearance and Disappearance of Brief Auditory Stimuli in Order to Measure the Duration of Sensation"

Moscow, Doklady Akademii Nauk SSSR, No 5 1971, pp 1,235-1,238

Abstract: Four human subjects with normal hearing were asked to press a key either as soon as they heard a tone or as soon as they ceased to hear it. The reaction times were measured for a wide variety of intnesities and durations of a pure tone of 1,000 hz (1 to 1,000 msec and from 0 to 100 db). The time of reaction to the cessation of sound was found to be 200 to 300 msec longer than to the beginning with t_o from 100 to msec, indicating that even very short sounds produce auditory sensations lasting several hundred milliseconds. However, the difference in reaction times diminished when the sound was lengthened and in most cases it became insignificant with t_o between 100 and 500 msec. The time of reaction to the disappearance of brief sound generally exceeded that to its appearance by a value approximately equal to the duration of the sensation. Thus, the difference between the two reaction times can be used to measure the length of an auditory stimulus.
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ceptor potential of isolated frog [illegible]
P.; Makarov, P. O. (Dep. Biophys., A. A. Zhdanov Leningrad State Univ., Leningrad, USSR). *Biofizika* 1970, 15(1), 50-8 (Russ). Perfusion of isolated frog muscle spindle with Ringer soln. contg. 3m*M* NaN_3 or 0.2m*M* 2,4-dinitrophenol decreased the amplitude of the hyperpolarization phase of the receptor potential and then reduced the depolarization phase and the amplitude of potential action within 1 min or 30-40 sec, resp. Changes in the receptor potential were reversible. Ouabain at 15 μM decreased the hyperpolarization phase of the receptor potential for the 1st 4-5 min and then reduced the depolarization phase and the action potential. Washing with physiol. saline for 30-40 min did not restore the receptor or action potential. The observed effects on receptor potential probably result from interference of ouabain and the metabolic inhibitors with the Na^+ pump.
BJJR

REEL/FRAME
19761340

Acc. Nr. AP0043176 Abstracting Service: CHEMICAL ABST. Ref. Code UR0217

88546c Effect of metabolic inhibitors and ouabain on the receptor potential of isolated frog muscle spindle. Alekseev, N. [illegible] Biophys., A. A. Zhdanov Leningrad

USSR

MAKAROV, P. O., Biofizika Organov Chuvstv (Biophysics of the Sense Organs), Leningrad, "Znaniye," 1971, 38 pp

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USSR UDC 612.88+612.821.8

MAKAROV, P. O., Chair of Biophysics, State University, Leningrad

"The Effects of Ultrasound on Time Characteristics of Skin Perception in Man"

Leningrad, Fiziologicheskiy Zhurnal SSR imeni I. M. Secaenov, Vol 59, No 1, 1973, pp 39-43

Abstract: According to the intensity-duration curve established for ultrasonic stimulation of human skin, the rheobase is 1.8 watts/cm^2 and the chronaxie about 30 msec. Ultrasound of threshold value induces polymodal sensations which, with increasing stimulus intensity, rapidly develop into pressure, pricks, and burning sensations and finally into unbearable pain. The latent period for ultrasonic stimulation (300-400 msec) is longer than for other cutaneous stimuli. The shortest interval for discrimination of two successive liminal stimuli is about 100 msec. Subliminal stimuli readily summate to induce a response. Liminal stimuli which are painless when applied for brief periods cause rapidly growing pain during prolonged stimulation due to a cumulative effect. Upon cessation of stimulation, a fairly long trace of after-sensation persists. Ultrasound does not stimulate nerve fibers, though they change their functional state. In the frog, ultrasound stimulates individual stretch receptors.

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USSR UDC 669.27-14:620.183

SAVITSKIY, Ye. M., POVAROVA, K. B., MAKAROV, P. V., and UGASTE, Yu. E., Moscow

"Metallography of Cast Tungsten"

Moscow, Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 177-185

Abstract: The structure of cast tungsten is determined by the presence of introduced and displaced impurities and also by the rate of quenching during crystallization. The introduced impurities, of which carbon is the principal one, belong to the group of nonmetallic impurities of the carbide, oxide, and complex types. The morphology and distribution of the impurities depends on the rate of metal quenching during crystallization. The nonmetallic impurities and, to some degree, carbides, distributed along the grain boundaries, initiate the origin of cracks at the boundary. The general nature of fracture of cast tungsten is combined with the prevalence of transcrystallite spalling. Alloying and increased rate of quenching during crystallization affect the fine structure of tungsten while contributing to the formation of a most distinctly expressed polygonal structure, i.e., increased density of dislocations in metal and particularly the share of screw dislocations,

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910007-9"

USSR

SAVITSKIY, Ye. M., et al., Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 177-185

a fact which in turn expands the work in propagating cracks during spalling while increasing the resistance of material to spalling failure. The authors are grateful to associates of the Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences of the USSR D. V. IGNATOV, M. M. KANTOR, and N. N. BOKAREVA for conducting electron microscopic investigations and to YE. V. KUNENKOVA, L. I. KRADINA, M. V. NIKITINA and V. T. BURTSEV for conducting the chemical analysis of alloys.

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Titanium

USSR UDC 669.295'28.3

REZNICHENKO, V. A., MOYNOV, S. G., MAKAROV, S. B., IVANOV, A. N., and ORLOVA, N. V., Moscow

"Study of the Process of Alloy Formation by the Joint Magnesiothermal Reduction of Titanium and Molybdenum Chlorides"

Moscow, Izvestiya Akademii Nauk SSSR Metally, No 1, Jan/Feb 74, pp 27-30

Abstract: Results are presented from studying the formation of alloys by the joint reduction of titanium and molybdenum chlorides and subsequent vacuum separation of the reaction masses. The phase composition of the reduction products was a mixture of alpha-titanium and two body-centered cubic, titanium- and molybdenum-base solid solutions and it was determined that the alpha-titanium is formed directly in the reduction process and not during the vacuum separation process at 850 to 1000° C. Extended soaking of the reaction masses at 800-850° C after reduction did not change phase composition of the produced metal. Evidently, particles of the b.c.c-solid solutions and alpha-Ti in the reaction mass were separated from each other by sublayers which hindered diffusion equalization of the concentration. After complete vacuum separation at 1000° C it was established that the main phase constituent is the b.c.c-solid solution which contains about 35% Mo in the titanium. One figure, two tables, one bibliographic references.
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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FUNCTIONAL PECULIARITIES OF A BLOCKED TRANSMISSION OF AN AUTOMOBILE WITH A 4X4 WHEEL CONFIGURATION -U-

AUTHOR-(02)-BOCHAROV, N.F., MAKAROV, S.G.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AVTOMOBIL'NAYA PROMYSHLENNOST', NO 2, 1970, PP 8-10

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ROAD WHEEL, BIBLIOGRAPHY, TRANSMISSION GEAR, AUTOMOBILE, TORQUE, SOLID KINEMATICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1206 STEP NO--UR/0113/70/000/002/0008/0010

CIRC ACCESSION NO--AP0123170

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123170

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDY THE OPERATIONAL SPECIFICS OF A BLOCKED TRANSMISSION, EQUALIZATION OF THE FREE PLAY RADII OF DRIVING WHEELS, AND CONDITIONS WHICH ARE ACCOMPANIED BY EQUALIZATION. THE OBTAINED RELATIONSHIPS EXPAND THE LIMITS FOR USING THE ANALYTICAL METHOD IN STUDYING THE REDISTRIBUTION OF TORQUE IN KINEMATIC MISMATCH.

UNCLASSIFIED

MAKAROV, S.N.

SPRS 56, 459

14 Sept 72

EFFECT OF SKILL IN UNDERWATER ORIENTATION ON PERCEPTION OF THE GRAVITATIONAL VERTICAL

Article by S. N. Makarov and B. B. Sokhov, Moscow, Aktual'nyye voprosy inzhenernoy biologii i meditsiny (Current Problems in Space Biology and Medicine), Russian, 1971, pp 175-176)

It is well known that when immersed under water human subjects commit errors in attempts to determine "up" and "down." With repeated descent underwater man's capacity for determining his position underwater increases and can attain a high degree of accuracy. The most probable explanation of the training effect would be the assumption of an increase in differential sensitivity in the vestibular and also in the skin and motor analyzers. In order to check this hypothesis we carried out work on subjects who were broken down into six groups. The first group consisted of athletes engaged in underwater orientation (first-class divers, masters of sport); the second group consisted of individuals in the second-class adult and third-class youth categories, and the third and fourth groups consisted of underwater swimmers with less experience (from 100 to 500 hours underwater), and finally, the sixth group included subjects without experience in underwater dives. All the investigations were made on the land using a "vertical" instrument. The problem in spatial orientation was to set up a light line in the darkness in conformity to the gravitational vertical.

The results indicated a high accuracy in orientation in the first group in comparison with the control group. The magnitude of the error in the third and fourth groups was approximately the same, but on the average was less than in the control group. In the fifth group, consisting of divers, the indices did not differ from the control data. Thus, immersion in water increases orientation accuracy under definite conditions.

69

MARKOV, S. N.

JPRS 56,499

14 July 72

115

UNDERWATER TRAINING AS ONE OF THE FACTORS INCREASING VESTIBULAR-AUTONOMIC STABILITY

[Article by A. A. Chirkov, L. N. Kornilova and S. N. Markov] Moscow, Aktual'nyye voprosy kosmicheskoy biologii i meditsiny [Current problems in space biology and medicine], Nauka, 1971, pp 286-287]

In most investigations by Soviet and foreign authors devoted to study of the influence of underwater sports on the vestibular apparatus the emphasis for the most part has been on vestibular-sensory reactions (Woomer, 1960; Margaria, 1965; Nigt, 1966).

Vestibular-somatic and vestibular-autonomic reactions have been less studied; only a few communications have dealt with those aspects (V. A. Levando, 1967; Ye. Ya. Lopukhin, 1967; S. N. Makarov, 1968).

During a conference on underwater swimming at Alushta we studied the effect of underwater training on the somatic and autonomic components of vestibular reactions with the participation of eight healthy males in the age group from 29 to 37 years who had earlier undergone a cycle of preliminary exercises. Five men (the main group) had undergone a course in underwater training and three men constituted the control group and had not participated in the training.

The training, conducted under a specially formulated program (S. N. Makarov, 1968), included different exercises performed under water: acrobatics (rotation in different planes and different types of figure swimming); diving; and swimming in outfit No. 2 (with an aqualung) using a compass oriented by markers on the bottom and on the sun, underwater hunting and motion picture surveys underwater. There was a total of 14 underwater training sessions, of which seven were directed to improving underwater orientation.

1/2 029 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--REACTION OF HEXAFLUORODIMETHYLAMINE OXIDE. V. KINETICS OF THE REACTION OF HEXAFLUORODIMETHYLAMINE OXIDE WITH POLYHALOGENATED OLEFINS

AUTHOR-(04)-MELNIKOVA, A.V., BARANAYEV, M.K., MAKAROV, S.P., ENGLIN, M.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2) 382-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, HALOGENATED ORGANIC COMPOUND, ALKENE, FLUORINATED ORGANIC COMPOUND, AMINE, ORGANIC OXIDE, CHEMICAL REACTION RATE, ACTIVATION ENERGY, BUTENE, CYCLIC GROUP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1581 STEP NO--UR/0079/70/040/002/0382/0385

CIRC ACCESSION NO--AP0112575

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

2/2 029

CIRC ACCESSION NO--AP0112575

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING VALUES AT INDICATED TEMP. WERE DETD. FOR TITLE REACTION RATE CONSTS. (K TIMES 10 PRIME6 MIN PRIME NEGATIVE1 MM PRIME NEGATIVE1) AND ACTIVATION ENERGIES (KCAL-MOLE), RESP. BETWEEN (CF SUB3) SUB2-NO. AND INDICATED OLEFINS: CF SUB2:CHF, ODEGREES, 16.12, 7.0; 70EGREES 16.7, 7.0; 22DEGREES 47.3, 7.0; CF SUB3 CF:CF SUB2, ODEGREES, 2.67, 7.4; 22DEGREES, 7.4, 7.4; 50DEGREES, 228, 7.4; (CF SUB3) SUB2 C:CF SUB2, 100DEGREES, 4.2, 9.4; 140DEGREES, 10.5, 9.4; 170DEGREES, 31, 9.4; CF SUB2:CH SUB2 70DEGREES 5.43, 9.4; 100DEGREES 13.74, 9.4; AND PERFLUOROCYCLOBUTENE 170DEGREES 3.4, 9.9; 225DEGREES, 12.57, 9.9.

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